

REMARKS

In the Office Action of June 20, 2007 claims 1-25 were rejected under 35 U.S.C. 101 as being unpatentable. The applicants' arguments filed on December 6, 2006 on this issue were deemed "not persuasive" but no further explanation was given. Claims 1-25 were also provisionally rejected for obviousness-type double patenting over claims 1-8 of co-pending application no. 09/842,438, now U.S. Patent 7,356,504.

I. Nonstatutory Subject Matter

The final Office Action of June 20, 2007 does not indicate why the Examiner finds applicants' arguments unpersuasive or why the Examiner is rejecting claims 1-25 under 35 U.S.C. 101 as unpatentable. In his first Office Action of July 6, 2006, the Examiner rejected claims 1-25 under 35 U.S.C. § 101 on two grounds: the invention must be within the technological arts; and the invention fails to produce a useful, concrete and tangible result. The applicants respectfully traverse this rejection.

The examiner cites no authority for application of this "technological arts" standard for non-statutory subject matter. None exists. The technological arts test was rejected by the Patent Office Boards of Patent Appeals and Interferences in Ex Parte Lundgren, 76 USPQ 2d 1385 (Bd. Pat. App. & Int., 2005).

Lundgren involved a process claim directed to a method of compensating managers while reducing incentives for collusion among competing managers. In rejecting Lundgren's process claim, the Examiner had relied on In re Musgrave, 431 F. 2d 882, 167 USPQ 280 (CCPA 1970); In re Toma, 575 F. 2d 872, 197 USPQ 852; and Ex parte Bowman, 61 USPQ 2d 1669 (Bd. Pat. App. & Int. 2001) (non-precedential) as establishing a separate "technological arts" test.

The Board in Lundgren could find no such test:

"We do not view the court's statement in *Musgrave* in regard to the technological arts to have created a separate 'technological arts' test in determining whether a process is statutory subject matter. Indeed, the court stated as much in *Toma*." 76 USPQ 2d at 1387.

Specifically, in Toma, the CCPA observed:

"The language [purporting to establish a technological arts requirement] which the examiner has quoted was written in answer to "mental steps" rejections and

was not intended to create a generalized definition of statutory subject matter. Moreover, it was not intended to form a basis for a new §101 rejection as the examiner apparently suggests. To the extent that this “technological arts” rejection is before us, independent of the rejection based on Benson, it is also reversed.”

Ex Parte Bowman was dismissed as non-precedential.

And the Board in Lundgren concluded:

“Our determination is that there is currently no judicially recognized separate ‘technological arts’ test to determine patent eligible subject matter under § 101. We decline to create one. Therefore, it is apparent that the examiner’s rejection can not be sustained.” 76 USPQ 2d at 1388.

Similarly, the second prong of the rejection is also groundless. Again, no case law is cited to support the Examiner’s position. The applicable case law is In re Alappat, 33 F.3d 1526, 31 USPQ 2d 1545 (Fed. Cir. 1994); State Street Bank v. Signature Financial, 149 F.3d 1368, 47 USPQ 2d 1596 (Fed. Cir. 1998); and AT&T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 50 USPQ 2d 1447 (Fed. Cir. 1999). Each of these decisions found that the claims at issue satisfied the requirements of 35 U.S.C. 101 because they produced a “useful, concrete and tangible result.” However, none of these decisions require that the claims perform physical transactions that would have produced useful, concrete and tangible results as the Examiner seems to require.

The Examiner also fails to indicate what is meant by a useful, concrete and tangible result. Applicants submit that Alappat, State Street, and AT&T equate this requirement to the utility requirement of 35 U.S.C. 101 and that applicants’ invention meets this requirement as well. In Alappat the invention at issue was apparatus for creating a smooth waveform display. It achieved this result by an interpolation process. The Federal Circuit reversed the Board’s affirmance of the Examiner’s rejection of the claim:

“This is not a disembodied mathematical concept which may be characterized as an ‘abstract idea,’ but rather a specific machine to produce a useful, concrete and tangible result.”

“The fact that the four claimed means elements function to transform one set of data to another through what may be viewed as a series of mathematical calculations does not alone justify a holding that the claim as a whole is directed to nonstatutory subject matter.” 33 F.3d at 1544, 31 USPQ 2d at 1557.

Similarly, in State Street the claim at issue was a system for calculating a share price for certain investment funds. Again, the Federal Circuit found this system to constitute patentable subject matter:

“Today, we hold that the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces ‘a useful, concrete and tangible result’—a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.” 47 USPQ 2d at 1601.

And in AT&T, the claim at issue was a method claim for generating a message record that included a primary interexchange carrier (PIC) indicator that was used to facilitate differential billing. While the PIC indicator was generated using simple mathematical principles (Boolean arithmetic), the Federal Circuit found the method to constitute patentable subject matter:

“The PIC indicator represents information about the call recipient’s PIC, a useful, non-abstract result that facilitates differential billing of long-distance calls made by an IXC’s subscriber. Because the claimed process applies the Boolean principle to produce a useful, concrete, tangible result without pre-empting other uses of the mathematical principle, on its face the claimed process comfortably falls within the scope of §101.” 50 USPQ 2d at 1452.

Just as the systems and method of Alappat, State Street and AT&T are statutory because they produced a “useful, concrete, and tangible result,” so too the claims of the present application are statutory under 35 U.S.C. § 101 because they recite a method that produces a “useful, concrete and tangible result.” Specifically, the invention is a method of obtaining predictive information through the analysis of high-frequency financial data. Specification, p. 1, lines 12-13. An example of such data discussed in the application is foreign exchange rates. Information enabling prediction of the future behavior of foreign exchange rates is of practical utility to those skilled in mathematical finance. Spec., p. 2, lines 7-9. The present invention takes into account mathematical relationships obtained from technical analysis of financial markets. The results derived from calculations using these relationships have practical utility. As the application discusses, there is a need for development of rapid and efficient techniques for extracting and computing values to be used in predicting price behavior of a variety of financial instruments whose price data can be described by inhomogeneous time series. Spec., p. 3, line

17 to p. 3, line 14. The invention computes several different predictive factors, including return, momentum, and volatility. App. p. 3, lines 28-30. Persons skilled in the art of technical financial analysis will readily grasp the utility of each of these factors in making decisions regarding risk management, e.g., trading strategies, over the financial instruments modeled by the process claimed. Moreover, the specification points to the paper by O.V. Pictet, et al., *Real-time trading models for foreign exchange rates*, 2(6) Neural Network World, 713-44 (1992) as discussing an application to which the method would successfully be applied.

The claims of the application recite applicants' method of calculating the values of one or more predictive factors relating to a time series representing financial market transactions data. Just as the system of State Street for calculating a share price was found to produce a useful, concrete and tangible result, it is respectfully submitted that the claims of this application that are directed to calculating the values of one or more predictive factors likewise produce a useful, concrete, and tangible result.

In September 2007, after the final Office Action, the Federal Circuit issued its decision in In re Comiskey, 499 F. 3d 1365, 84 USPQ 2d 1670 (Fed. Cir., 2007). Comiskey claimed a method and system for mandatory arbitration of legal documents. The claims had been rejected under 35 U.S.C. 103(a) as obvious and this rejection had been sustained by the Board. After oral argument, the Federal Circuit requested supplemental briefing on the patentability of the claims under 35 U.S.C. 101 and decided the appeal on the basis of the §101 issues.

In reaching its decision, the Federal Circuit said nothing about any "technological arts" requirement and mentioned the "useful, concrete and tangible" language of State Street and AT&T only in passing. 84 USPQ 2d at 1678. However, the Federal Circuit did state its view of the Supreme Court's holdings on this issue as

"a claim reciting an algorithm or abstract idea can state statutory subject matter only if, as employed in the process, it is embodied in, operates on, transforms, or otherwise involves another class of statutory subject matter, i.e., a machine, manufacture, or composition of matter." 84 USPQ 2d at 1678.

Further, the Federal Circuit stated that mental processes standing alone are not patentable subject matter.

The Federal Circuit then applied these principles to Comiskey's claims. Since Comiskey conceded that independent claims 1 and 32 did not require a machine, the Federal Circuit held

these claims to be unpatentable. However, claims 17 and 46 recited the use of modules and claim 17 recited “means for selecting an arbitrator from an arbitrator database.” These claims, under the broadest reasonable interpretation, were found to require the use of a computer. The term “module” had a dictionary definition of a “hardware or software component” and “database” was defined as “any electronically-stored collection of data.” These claims and several dependent claims were found to claim patentable subject matter in that they combined the use of machines with a mental process.

In the present application each of independent claims 1, 9, 17, 20 and 25 recites the step of “electronically calculating values of one or more predictive factors relating to said time series.” In so doing, each of these claims and the claims dependent thereon clearly requires the use of a machine for execution of the process that is the subject of the claim. And just as claims 17 and 46 of Comiskey were found to be patentable subject matter, so too claims 1-25 are patentable subject matter.

In conclusion, since there is no requirement that the claims be within the technological arts, since the claims produce a useful, concrete and tangible result, and since the claims clearly require their execution by a machine, the rejection of claims 1-25 under 35 U.S.C. 101 should be withdrawn.

II. Nonstatutory Double Patenting

The examiner further provisionally rejects claims 1 - 25 as being unpatentable over claims 1 – 8 of copending Application No. 09/842,438, now U.S. Patent 7,356,504. Applicants respectfully request that this issue be held in abeyance until agreement is reached as to the text of claims that meet the requirements of patentable subject matter.

Applicants are submitting herewith a replacement sheet for FIG. 13. In reviewing the application it was realized that the content of FIG. 13 as filed was identical to FIG. 14 as filed and did not reflect the text description of FIG. 13 at pages 28 and 29 of the specification which made no mention of construction of a standardized time series. Accordingly, a revised FIG. 13 is submitted herewith that does not recite a step of constructing a standardized time series.

Aside from the fee for an extension of time and an RCE, no additional fee is believed to be due for filing this response. However, if a fee is due, please charge such fee to Morgan, Lewis & Bockius LLP Deposit Account No. 50-0310.

If the Examiner believes a telephone interview would expedite prosecution of this application, the Examiner is invited to call applicant's attorney at the number given below.

Date: July 18, 2008

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Francis E. Morris", is written over a horizontal line.

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